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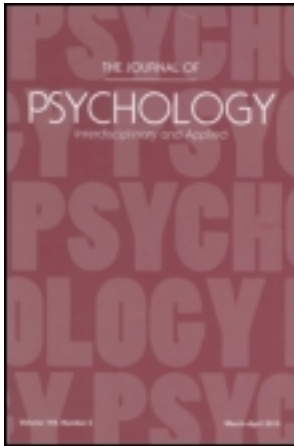
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Attitudes Toward Illegal Immigration: A Cross-National Methodological Comparison

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ABSTRACT. This research is an examination of the generalizability of a Likert-type scale originally devised to measure attitudes toward illegal immigrants (IA) in the United States. The current authors administered this scale across 4 national samples using several methodological procedures. Undergraduate students (631) responded to the IA scale (R. Ommundsen & K. S. Larsen, 1997) at the University of Oslo, Oregon State University, the University of Copenhagen, and Vrije University of Amsterdam. The authors' main purpose was to evaluate the adequacy of the 20-item IA scale by examining possible problems with method and translation. A translation study carried out with the Danish, Norwegian, and Dutch samples ($N = 299$) showed that the various national versions were fairly accurate and contained largely the same meanings. The use of procrustes analysis of the IA scale yielded 3 factors in all 4 national samples. The coefficient of congruence of these 3 orthogonally rotated factor matrices, with the U.S. factor matrix as target, varied from .80 to .95, supporting the cross-national robustness of the scale. In the search for a more economical cumulative scale, a Mokken analysis yielded a 5-item scale that represented the aforementioned 3 factors and was stable across national samples.

Key words: attitudes, illegal immigrants, scaling

ROGLER (1999) CRITICIZED the persistence of cultural insensitivity in social research. Problems include linguistic translations that seek to conform to the exact terms of standardized instruments and the uncritical transfer of concepts across cultures. The meaning of items in standard surveys within national cultures is crucial to any useful cross-national comparisons. In this study, we used

several methodological procedures in four national samples to examine a unidimensional Likert-type scale developed in the United States. A major objective was to develop an economical and robust unidimensional cumulative scale that could be useful in cross-national research.

Ommundsen and Larsen (1997) reported on the reliability and validity of a Likert-type scale measuring attitudes toward illegal aliens (IA). Item analysis yielded a balanced scale with part-whole correlations ranging from .59 to .76 ($p \leq .0001$). Results of further studies indicated a unidimensional scale with acceptable homogeneity correlating significantly with factors from the general literature on prejudice. Individuals who displayed negative attitudes toward illegal aliens were generally male, authoritarian, and disapproved of other minorities.

In a second phase, Ommundsen and Larsen (1999) compared attitudes toward illegal immigration between Scandinavian (Danish, Norwegian) and U.S. undergraduate students. The survey included the IA scale as well as measures of radicalism-conservatism, Machiavellianism, anomie, and optimism-pessimism. The results yielded alpha coefficients ranging from .92 to .93 and significant correlations with radicalism-conservatism, Machiavellianism, and anomie. A regression analysis identified radicalism-conservatism as the primary predictor. An analysis of variance among the three national samples yielded a significant F value among the national samples, and a subsequent Scheffé test yielded significant differences among all three samples.

A major issue is whether cross-national differences might be attributed to cultural variability and experience with illegal immigration or whether differences may derive from methodological and translation problems. A related issue is the development of a robust and economical scale that clearly reflects a common meaning universal in all the national samples. A shorter scale, which still reflects the underlying factors in all national samples, would be more economical in broad surveys on a variety of social issues.

Method

Survey and Participants

To collect data for the construction of a cumulative unidimensional scale, we administered a survey, consisting of the 20-item IA scale to 97 undergraduates at the University of Copenhagen (77.3% men, mean age = 26.5), 337 undergraduates at the University of Oslo (39.2% men, mean age = 23.0), 102 undergraduates at Vrije University of Amsterdam (31.0% men, mean age = 23.0), and 95 undergraduates at Oregon State University (29.4% men, mean age = 23.6).

For the language comparison study, a second survey was administered in

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which 81 Danish undergraduates (32.4% men, mean age = 24.01), 147 Dutch undergraduates (31.0% men, mean age = 23.0), and 71 Norwegian undergraduates (43.5% men, mean age = 23.6) participated. Both surveys were administered in classroom settings.

Results and Discussion

One objective was to evaluate translation problems by comparing the alpha coefficients in the national samples. If no differences were found, the equality of language structure would be supported, and differences might be attributed to experience and existing national differences (Hakstian & Whalen, 1976). To evaluate whether the scale reflects a common meaning, universal to all the samples, it was important to check for possible translation problems. For bilingual respondents, this could be done by splitting the sample randomly and comparing responses to the original English version by the half of the sample who responded in the native language with the other half of the sample. If there were no differences, that is, if the respondents perceived both forms the same way, the result would support the conclusion that both forms convey the same meanings and would add validity to the translation process.

Common Meaning and Translation Issue

We expected that the 20-item scale might be difficult to interpret because it is hard to evaluate cross-national robustness with the Likert method. To check the IA scale for translation problems, we had the English language version independently translated into Danish, Dutch, and Norwegian languages by bilingual colleagues, with final versions agreed in conference.

In each of the three countries participating in the language study, two random samples of students were drawn, one completing the native language version and the other the English version of the IA scale. (All students participating in this language study were fluent in the English language.) A comparison of alpha scores between the national and the English versions in each of the countries (Hakstian & Whalen, 1976; Hox, 1998) yielded no significant differences, lending support to the equality of language structure. The range of alpha scales was .92 to .93 ($p \leq .01$). We carried out a further t test for comparison of means in the two independent samples to find out for each of the three participating national samples whether differences existed between the mean scores on each of the 20 items on the national language version and the English version. In each of the three countries, only minor differences were found between the mean scores of the two (native and English version) samples.

In the Danish sample there were only four significant t values ($df = 177$, range = 2.59 to 2.71, $p \leq .04$). For the two Dutch samples, there were no significant differences for 17 of the 20 items. Three items yielded significant t values

($df = 147$, range = 2.51 to 3.72, $p \leq .01$). For respondents at the University of Oslo participating in the translation study, there were no significant differences on 14 of the 20 items. The mean scores for six items differed significantly between the two samples' t values ($df = 4.04$, range = 2.10 to 3.72, $p \leq .05$).

These results may be partially attributed to a probability factor in the use of multiple t tests. Another explanation might point to contextual effects (e.g., respondents presented with the national version may have responded with that context in mind). However, because these differences were small and the large majority of items did not generate significant differences, the translations appear to be a fairly accurate version of the original (U.S.) IA scale. The results of both the alpha test and t tests support the view that the translated and original items convey the same meanings (with the exceptions noted). It is well to keep in mind that the translated check is only possible when the participants are truly bilingual. Overall, the Likert form of the IA scale appears to contain validity in language structure and may be useful in its present form. However, it is generally agreed that a cumulative scale has some advantages over a Likert-type scale. The main advantage is that a scale score of an individual or group (average score) indicates more precisely on which item or items a person or group agrees and on which item or items a person or group does not agree. Consequently, the meaning of scale scores is more clear (Mokken, 1971).

The Conceptual Composition of the Illegal Aliens Scale and the Construction of a Cumulative Unidimensional Scale

The aim of the scale analysis was to develop a robust cumulative unidimensional scale from the original IA scale. To get some idea of the conceptual meaning of the original 20-item scale of the Likert type, we first completed a factor analysis with the orthogonal procrustes rotation (Cliff, 1966). Results showed that the concept of *attitude toward illegal immigration* involves evaluation along three conceptual factors. Second, we developed a cumulative scale of the Mokken-type (Mokken, 1971) with a smaller number of items of increasing difficulty. The Mokken approach proved well suited for identifying a one-dimensional scale composed of 5 items, representing the three different factors found in the procrustes analysis, yielding items of increasing difficulty.

Procrustes Analysis of the IA Scale

Attitudes toward illegal immigrants involve evaluations along multiple conceptual factors (e.g., economic, moral, legal). To what extent is it possible to identify several attitudinal factors that are stable across different national samples?

Inspection of the scree plots from principal component analyses for each of the national samples independently indicated three factors. Even if three factors

would fit all samples well, the factors could have different interpretations for different samples. To examine cross-cultural stability further, we completed an orthogonal procrustes rotation using an algorithm suggested by Cliff (1966). This analysis involved rotating a factor matrix orthogonally to a specified target matrix. Degree of congruence or match between the factors was expressed by coefficients varying from 0 to 1, with higher values indicating high congruence between pairs of a factor (somewhat like a correlation). The analysis was done using the program Matchfac, written by Eilertsen (1989).

Because the IA scale was originally developed in the United States, we decided to use the U.S. data as target. We inspected the scree plot from a principal components analysis with varimax rotation of the U.S. factor solution and found three factors that could be given a meaningful interpretation: Factor 1, labeled Cost Benefit, had to do with the economic cost for society and the benefits immigrants may add in terms of human resources to society. Factor 2 was labeled Open Borders/Free Flow. Factor 3 was labeled Human Rights.

For each European national sample, we identified a three-factor solution that had a fairly high to high congruence with the U.S. three-factor solution, indicating cross-national robustness of a three-factor solution of the original 20-item IA scale (see Table 1). This finding indicates that, in these societies, attitudes toward illegal immigrants involve evaluations along the three conceptual factors, costs and benefits to society, whether there should be open borders and free flow of immigrants, and civil and human rights.

Mokken Scale Analysis of the IA Scale

What has become known as the Mokken scale analysis concerns a theory and a procedure of scale analysis for dichotomous (Mokken, 1971) and later polychotomous (Sijtsma & Molenaar, 1990) items. The theory can be viewed as

TABLE 1
Coefficients of Congruence Between Three Orthogonally
Rotated Factor Matrices of the IA Scale (Denmark,
Netherlands, & Norway) With a U.S. Three-Factor
Matrix as Target

Sample	Orthogonal factors		
	1	2	3
Denmark	.89	.94	.80
Netherlands	.91	.92	.85
Norway	.95	.94	.85

a probabilistic version of the Guttman scale analysis, or more generally, as a non-parametric approach to item response theory.

Attitudes are often measured by a set of items because they are hypothetical constructs that cannot be measured directly. It is then assumed that a respondent's position on a latent attribute can be inferred from the responses to the set of items.

Item response theory tries to explain the observable responses by assuming an underlying continuum on which both items and participants can be placed. The probability of a given response to an item is expressed as a function of the attribute measured and of certain characteristics of the items such as difficulty and discriminating power. Mokken's model makes no use of a mathematical specification of this function, in contrast to the parametric item response model of Rasch (1960). Consequently, when the model is fit empirically, only ordinal information is available about the places of participants and items on the underlying continuum. The Mokken scale procedure and program computes a measure of scalability (Loevinger's H) for each single item (H_i) and for a set of items (H). An item is supposed to be part of a cumulative scale if $H_i \geq .30$ (or preferably .40 or .50).

In the analysis of the IA scale, we decided to dichotomize the responses on the original 20 items because the results of a set of cognitive interviews (Hak & Van der Veer, 1999) showed that respondents had difficulty perceiving a difference between *agree* and *strongly agree* on the one hand, and *disagree* and *strongly disagree* on the other. Also, the meaning of the term *uncertain* was unclear. Some respondents might check the term to express uncertainty about their opinion of the statement, whereas still others might check this category because they are uncertain about the meaning of the statement itself.

The dichotomization was done by dividing the answer alternatives into a category labeled *pro-illegal aliens* (Categories 4 & 5 or 1 & 2 for the reversed items) versus a category labeled *not pro-illegal*. The difficulty of any item was defined by the percentage of positive (pro-illegal aliens) answers in the sample. The higher the percentage of pro-illegal responses to an item, the less difficult that item was, and the less one needed a positive attitude toward illegal aliens to agree with that item.

Summarized, the second procedure yielded an 8-item Mokken scale that seemed to be a fairly good instrument to measure people's attitudes toward illegal aliens and illegal immigration in different contexts, but the scale was not robust enough in the Dutch data. When we examined the rank order of the items in each of the five scales, we observed that Items 17 (in U.S. sample) and 15 (in the Dutch and Danish samples) had a different position compared with the general pattern. For Items 16, 20, 3, and 8, the rank order was identical, whereas the positions of Items 18 and 14 were unclear, although they belonged to the three most difficult items.

For that reason, we reran the Mokken procedure leaving out Items 15 and 17, and also leaving out Item 14 (lowest H_i and of almost equal difficulty as Item 18).

TABLE 2
Results of Mokken Scale Analysis:
Items and Proportion of Agreement

Item	Proportion of agreement
Illegal aliens have rights too.	.75
Illegal aliens should not be discriminated against.	.69
There is enough room in this country for everyone.	.43
Illegal aliens should be excluded from social welfare.*	.38
All illegal aliens deserve the same rights as U.S. (Norwegian, Danish, Dutch) citizens.	.19

*Keyed in the negative direction.

The final run was with Items 3, 8, 16, 18, and 20. The results of this final procedure yielded a one-dimensional scale with 5 items in the same rank order and only one minor problem: In the U.S. sample, Item 18 had a comparatively low H_i ($H_{18} = .29$). However, looking at both the scale coefficients and the difficulties, the last scale seems to be relatively the best one. The scale coefficients were .51 for the total group, .47 for the Norwegian, .48 for the United States, .61 for the Danish, and .44 for the Dutch samples.

Table 2 contains the 5-item scale in rank order of difficulty. This cumulative illegal immigration scale is suitable for measuring attitudes toward illegal immigration, covering all three factors of this attitudinal concept identified by the procrustes analysis.

An inspection of the 5-item Mokken scale shows that all three factors are represented: Item 8 (Factor 1), Item 3 (Factor 2), Items 16 and 18 (Factor 3), and Item 20 (loading on all three factors). Thus, we concluded that the present 5-item one-dimensional cumulative scale contains items related to the conceptual aspects of attitude toward illegal immigrants and is stable across national samples.

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